KELVIN
Air Conditioning System
2016

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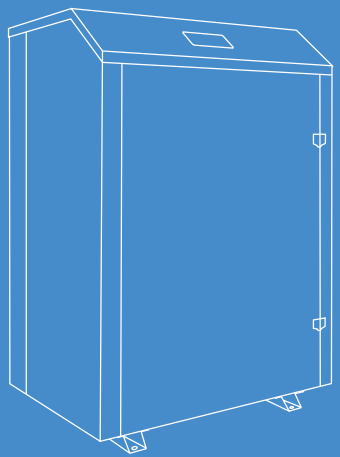
TM

bsi. ISO 9001 Quality Management | ISO 14001 Environmental Management

KELVIN Clim M5

Cooling Capacity: 5 ~ 26 kW



R410A PLATE SPLIT SYSTEM EU

Motoevaporating units for indoor installation, equipped with scroll compressor and plate type heat exchangers

KELVIN AIR CONDITIONING

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EUROVENT CERTIFIED PERFORMANCE Pending... www.eurovent-certification.com

KELVIN AIR CONDITIONING

R410A PLATE SPLIT SYSTEM EU

MAIN FEATURES

- Motoevaporating unit.
- 13 models available, for a wide selection opportunity.
- Average step of 2,5kW.
- EER up to 2,88.
- Scroll compressor.
- R410A Refrigerant charge.
- Single refrigerant circuit.
- Plate type heat exchanger.
- Suitable for indoor installation.

MAIN BENEFITS

- Availability of partial heat recovery system.
- Availability of kit for the reduction of the noise.
- Availability of remote condensers with axial fans (KELVIN Clim C12 series) or plug-fan (KELVIN Clim C12 PF series).
- Easily of maintenance.
- Eurovent Certification.(pending)

INDOOR INSTALLATION

The machines are designed for indoor installation.

REMOTE CONDENSER

The units are designed to be matched with remote condensers with axial fans (KELVIN Clim C12 series) or plug-fan (KELVIN Clim C12 PF series).

COMPLETENESS OF EQUIPMENT AND OPTIONAL

The units are standardly equipped with 3-speed water pump.
On request is possible to install the system for the domestic hot water production and a chilled water tank.

WORKING LIMITS IN COOLING MODE

Evaporator chilled water outlet temperature: -12~20°C
Ambient temperature: -10~45°C

MAIN COMPONENTS

FRAMEWORK
- Base, self supporting frame and panelling in steel plate with protective surfaces treatment in compliance with UNI ISO 9227/ASTMB117 and ISO 7253, and painted with epoxy powders.
- Colour: RAL 9002.
- Insulation of the internal framework.

COMPRESSOR
- Orbiting spiral (SCROLL) hermetic compressors with spiral profile optimized for R410A refrigerant.
- ON / OFF capacity control (0 / 100%).
- Crankcase heater.
- Electric motor thermal protection via internal winding temperature sensors.
- Rubber supports.
- Electric motor:
- Version M: single-phase electric motor with direct on line starting.
- Version T: 2-pole 3-phase electric motor with direct on line starting.
- Phase sequence electronic relay.

EVAPORATOR
- Copper brazed plate type with cover plates, plates and connections in AISI 316 stainless steel.
- Anticondensate insulation made of polyurethane.
- Temperature sensors on water inlet and outlet.
- Differential water pressure switch for water flow control.
- 3-speed circulation pump.

REFRIGERANT CIRCUIT
- Thermostatic expansion valve.
- Service valves on liquid line and gas discharge.
- Pressure transducers with indication, control and protection functions, on low and high refrigerant pressure.
- 0~10V proportional signal to manage the condensing control system of the remote air cooled condenser.
- High pressure safety switch with manual reset.
- Refrigerant circuit with copper tubing with anticondensate insulation of the suction line.
- Plastic capillary hoses for pressure sensors connection.
- R410A refrigerant charge.

ELECTRICAL PANEL
In accordance with EN60204-1 norms, suitable for indoor installation complete with:
- Main switch.
- Magnetothermic switch or fuses for compressor.
- Contactor for compressor.
- Transformer for auxiliary circuit and microprocessor supply.
- Panel with machine controls.
- Power supply:
- M: 230/3/50,
- T: 400/3/50+N.

CONTROL SYSTEM
- Microprocessor control. The system includes:
- Display for the visualization of the alarm codes, set values and temperature values.
- Dynamic set point.
- Compressor running hour meter.
- Contact for general alarm remotization.
- "Low Temperature" set for operation with ambient air temperature up to -10°C.

TO BE MATCHED WITH REMOTE CONDENSER

The units are designed to be matched with remote condensers with axial fans (KELVIN Clim C12 series) or plug-fan (KELVIN Clim C12 PF series).

OPTIONAL ACCESSORIES

KELVIN Clim M5 MODEL	M 06 P1 J3	M 08 P1 J3	M 10 P1 J3	M 13 P1 J3	T 06 P1 J3	T 08 P1 J3	T 10 P1 J3	T 13 P1 J3	T 15 P1 J3	T 17 P1 J3	T 20 P1 J3	T 25 P1 J3	T 30 P1 J3
TEAM MATE remote condensers	●	●	●	●	●	●	●	●	●	●	●	●	●
TEAM MATE PF remote condensers	●	●	●	●	●	●	●	●	●	●	●	●	●
450 - Partial heat recovery	●	●	●	●	●	●	●	●	●	●	●	●	●
610 - Noise deading cup on compressor	●	●	●	●	●	●	●	●	●	●	●	●	●
764 - Water tank	●	●	●	●	●	●	●	●	●	●	●	●	●
117 - Low water temperature set	●	●	●	●	●	●	●	●	●	●	●	●	●
920 - Remote control kit	●	●	●	●	●	●	●	●	●	●	●	●	●
923 - KELVIN-Com MBUS/JBUS Serial board	●	●	●	●	●	●	●	●	●	●	●	●	●
962 - Kit modem GSM	●	●	●	●	●	●	●	●	●	●	●	●	●
957 - Plantwatch without modem	●	●	●	●	●	●	●	●	●	●	●	●	●
930 - Remote graphic terminal kit	●	●	●	●	●	●	●	●	●	●	●	●	●

● available accessory; - not available accessory

TECHNICAL DATA KELVIN Clim M5

	KELVIN Clim M5		M 06 P1	M 08 P1	M 10 P1	M 13 P1	T 06 P1	T 08 P1	T 10 P1	T 13 P1
	SIZE		J3	J3	J3	J3	J3	J3	J3	J3
STANDARD	**Cooling capacity (1)**	**kW**	**5,4**	**7,1**	**9,2**	**12,1**	**5,4**	**6,9**	**9,2**	**12,0**
	Unit power input (*)	kW	2,0	2,6	3,4	4,2	1,9	2,5	3,3	4,3
	Evaporator water flow rate	m³/h	0,9	1,2	1,6	2,1	0,9	1,2	1,6	2,1
	Evaporator pressure drop	kPa	31	21	28	23	31	20	28	23
	Compressors		scroll	scroll	scroll	scroll	scroll	scroll	scroll	scroll
	Quantity	n.	1	1	1	1	1	1	1	1
	Capacity steps	n.	1	1	1	1	1	1	1	1
	Pumping group									
	-3speed water pump	kW	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
	Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	4,7	4,8	5,1	5,4	4,7	4,8	5,1	5,4
	Gas circuits	n.	1	1	1	1	1	1	1	1
	Power supply	V/Ph/Hz								
	Max unit operating current (FLA) (*)	A	15,6	20,1	24,2	34,7	7,1	8,9	10,5	12,9
	Unit starting current (LRA)	A	62,0	69,0	100,0	117,5	30,0	40,0	45,0	53,5
	EER (1) (*)	kW/kW	2,76	2,69	2,70	2,88	2,77	2,73	2,79	2,78
	Sound power level [Lw] (2)	dB(A)	56,2	56,2	58,2	58,2	56,2	56,2	58,2	58,2
	Average sound pressure level [Lpm] (3)	dB(A)	42,0	42,0	44,0	44,0	42,0	42,0	44,0	44,0
	Net weight	kg	51,0	51,0	54,5	66,0	51,0	51,0	54,5	66,0
	Hydraulic connections									
	Evaporator IN/OUT - ISO-1/228G M	Ø	2/1 1	"2/1 1	"2/1 1	"2/1 1	"2/1 1	"2/1 1	"2/1 1	"2/1 1"
	Refrigerant connection									
	Liquid return	n x Ø	10	10	10	12	10	10	10	12
	Gas delivery	n x Ø	10	10	10	12	10	10	10	12
TEAM MATE	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE STD		M 11	M 11	M 14	M 17	M 11	M 11	M 14	M 17
	Nominal power inout	kW	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
	Max operating current	A	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
	Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
OPT	**Partial heat recovery - Heating Capacity (4)**	**kW**	**2,0**	**2,6**	**3,4**	**4,4**	**2,0**	**2,5**	**3,4**	**4,4**
	Water tank - volume	l	40	40	40	40	40	40	40	40
TEAM MATE LNO	**KELVIN CLIM M5**									
	Cooling capacity (1)	**kW**	**5,4**	**7,0**	**9,0**	**12,1**	**5,3**	**6,8**	**9,0**	**12,1**
	Unit power input	kW	1,9	2,7	3,5	4,3	1,9	2,5	3,4	4,4
	EER (1) (*)	kW/kW	2,75	2,61	2,59	2,83	2,74	2,67	2,68	2,76
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE LNO	Mod.	M 11	M 11	M 14	M 20	M 11	M 11	M 14	M 20
	Nominal power inout	kW	0,2	0,2	0,2	0,3	0,2	0,2	0,2	0,3
	Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
TEAM MATE ELN	**KELVIN CLIM M5**									
	Cooling capacity (1)	**kW**	**5,3**	**6,8**	**8,7**	**11,7**	**5,3**	**6,6**	**8,7**	**11,7**
	Unit power input	kW	2,0	2,8	3,6	4,4	2,0	2,6	3,5	4,5
	EER (1) (*)	kW/kW	2,66	2,48	2,43	2,66	2,67	2,55	2,52	2,59
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE ELN	Mod.	M 11	M 11	M 14	M 20	M 11	M 11	M 14	M 20
	Nominal power inout	kW	0,2	0,2	0,2	0,3	0,2	0,2	0,2	0,3
	Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
TEAM MATE PF STD	**KELVIN CLIM M5**									
	Cooling capacity (1)	**kW**	**5,4**	**7,1**	**8,8**	**11,7**	**5,4**	**6,9**	**8,9**	**10,9**
	Unit power input	kW	2,1	2,8	3,7	4,6	2,1	2,7	3,6	5,1
	EER (1) (*)	kW/kW	2,59	2,56	2,37	2,56	2,60	2,60	2,45	2,13
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE PF STD	Mod.	T 11	T 11	T 11	T 14	T 11	T 11	T 11	T 11
	External static pressure	Pa	50	50	50	50	50	50	50	50
	Nominal power inout	kW	0,4	0,4	0,4	0,4	0,4	0,4	0,4	0,4
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60
TEAM MATE PF LNO	**KELVIN CLIM M5**									
	Cooling capacity (1)	**kW**	**5,5**	**7,3**	**9,1**	**11,8**	**5,5**	**7,1**	**9,1**	**11,8**
	Unit power input	kW	1,9	2,6	3,5	4,4	1,9	2,5	3,4	4,5
	EER (1) (*)	kW/kW	2,84	2,82	2,61	2,68	2,84	2,85	2,70	2,61
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE PF LNO	Mod.	T 14	T 14	T 14	T 17	T 14	T 14	T 14	T 17
	External static pressure	Pa	36	36	36	36	36	36	36	36
	Nominal power inout	kW	0,3	0,3	0,3	0,3	0,3	0,3	0,3	0,3
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60
TEAM MATE PF ELN	**KELVIN CLIM M5**									
	Cooling capacity (1)	**kW**	**5,4**	**7,1**	**8,9**	**11,4**	**5,4**	**6,9**	**8,9**	**11,4**
	Unit power input	kW	1,9	2,5	3,5	4,5	1,9	2,4	3,4	4,7
	EER (1) (*)	kW/kW	2,90	2,79	2,52	2,53	2,91	2,84	2,61	2,45
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1	1	1	1
	Series TEAM MATE PF ELN	Mod.	T 14	T 14	T 14	T 17	T 14	T 14	T 14	T 17
	External static pressure	Pa	25	25	25	25	25	25	25	25
	Nominal power inout	kW	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 m²°K/kW.
2. Sound power level [Lw] according to ISO EN 9614 - 2.
3. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
4. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 m²°K/kW.

(*) The value includes the remote condenser.
(**) The remote condenser has separated power supply.

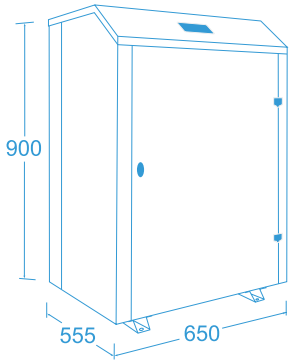
TECHNICAL DATA KELVIN Clim M5

	KELVIN Clim M5 SIZE		T 15 P1 J3	T 17 P1 J3	T 20 P1 J3	T 25 P1 J3	T 30 P1 J3
STANDARD	**Cooling capacity (1)**	**kW**	**13,6**	**16,2**	**17,7**	**21,5**	**26,0**
	Unit power input (*)	kW	4,9	5,6	6,6	7,7	9,1
	Evaporator water flow rate	m³/h	2,3	2,8	3,0	3,7	4,5
	Evaporator pressure drop	kPa	30	25	30	32	29
	Compressors		scroll	scroll	scroll	scroll	scroll
	Quantity	n.	1	1	1	1	1
	Capacity steps	n.	1	1	1	1	1
	Pumping group						
	-3speed water pump	kW	0,4	0,4	0,4	0,4	0,4
	Refrigerant		R410A	R410A	R410A	R410A	R410A
	Total refrigerant charge (optional excluded)	kg	5,4	5,8	5,8	6,5	7,1
	Gas circuits	n.	1	1	1	1	1
	Power supply	V/Ph/Hz	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N	400/3/50+N
	Max unit operating current (FLA) (*)	A	14,5	17,9	17,9	24,2	25,2
	Unit starting current (LRA)	A	66,0	77,0	103,0	113,0	120,0
	EER (1) (*)	kW/kW	2,80	2,88	2,68	2,78	2,86
	Sound power level [Lw] (2)	dB(A)	61,2	65,2	62,2	64,2	64,2
	Average sound pressure level [Lpm] (3)	dB(A)	47,0	51,0	48,0	50,0	50,0
	Net weight	kg	72,0	102,0	102,0	111,0	120,0
	Hydraulic connections						
	Evaporator IN/OUT - ISO-1/228G M	Ø	1 1/2"	1 1/2"	1 1/2"	1 1/2"	1 1/2"
	Refrigerant connection						
	Liquid return	n x Ø	12	12	12	16	16
	Gas delivery	n x Ø	12	12	12	16	16
TEAM MATE	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1
	Series TEAM MATE STD		M 20	M 25	M 25	M 30	M 35
	Nominal power inout	kW	0,4	0,5	0,5	0,5	0,5
	Max operating current	A	1,8	2,9	2,9	2,9	2,9
	Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
OPT	**Partial heat recovery - Heating Capacity (4)**	**kW**	**5,0**	**5,9**	**6,5**	**7,9**	**9,6**
	Water tank - volume	l	40	40	40	40	40
TEAM MATE LNO	**KELVIN CLIM M5**						
	Cooling capacity (1)	**kW**	**13,8**	**16,6**	**18,2**	**22,4**	**26,6**
	Unit power input	kW	4,8	5,3	6,3	7,4	9,0
	EER (1) (*)	kW/kW	2,86	3,11	2,91	3,01	2,97
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1
	Series TEAM MATE LNO	Mod.	M 25	M 30	M 30	M 45	M 45
	Nominal power inout	kW	0,5	0,5	0,5	0,7	0,7
	Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
TEAM MATE ELN	**KELVIN CLIM M5**						
	Cooling capacity (1)	**kW**	**13,4**	**16,3**	**17,7**	**21,9**	**25,8**
	Unit power input	kW	4,9	5,4	6,4	7,6	9,2
	EER (1) (*)	kW/kW	2,74	3,00	2,77	2,89	2,80
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1
	Series TEAM MATE ELN	Mod.	M 25	M 30	M 30	M 45	M 45
	Nominal power inout	kW	0,4	0,4	0,4	0,6	0,6
	Power supply (**)	V/Ph/Hz	230/1/50	230/1/50	230/1/50	230/1/50	230/1/50
TEAM MATE PF STD	**KELVIN CLIM M5**						
	Cooling capacity (1)	**kW**	**13,3**	**15,8**	**17,7**	**21,8**	**25,7**
	Unit power input	kW	5,0	5,8	6,7	8,4	10,0
	EER (1) (*)	kW/kW	2,64	2,73	2,65	2,61	2,57
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1
	Series TEAM MATE PF STD	Mod.	T 17	T 21	T 24	T 33	T 33
	External static pressure	Pa	50	50	50	50	50
	Nominal power inout	kW	0,5	0,5	0,6	1,3	1,3
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60
TEAM MATE PF LNO	**KELVIN CLIM M5**						
	Cooling capacity (1)	**kW**	**13,4**	**15,9**	**18,4**	**21,8**	**25,7**
	Unit power input	kW	4,9	5,7	6,5	7,8	9,4
	EER (1) (*)	kW/kW	2,74	2,81	2,82	2,79	2,72
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1
	Series TEAM MATE PF LNO	Mod.	T 21	T 24	T 33	T 38	T 38
	External static pressure	Pa	36	36	36	36	36
	Nominal power inout	kW	0,3	0,4	0,8	0,7	0,7
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60
TEAM MATE PF ELN	**KELVIN CLIM M5**						
	Cooling capacity (1)	**kW**	**12,9**	**15,4**	**17,9**	**21,2**	**24,8**
	Unit power input	kW	5,0	5,8	6,5	7,9	9,6
	EER (1) (*)	kW/kW	2,59	2,67	2,77	2,70	2,57
	REMOTE CONDENSER - Quantity	n.	1	1	1	1	1
	Series TEAM MATE PF ELN	Mod.	T 21	T 24	T 33	T 38	T 38
	External static pressure	Pa	25	25	25	25	25
	Nominal power inout	kW	0,2	0,3	0,5	0,5	0,5
	Power supply (**)	V/Ph/Hz	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60	380-480/3/50-60

1. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C. Fouling factor of the exchangers 0,043 $m^2°K/kW$.
2. Sound power level [Lw] according to ISO EN 9614 - 2.
3. Average sound pressure level [LPm] 1m far according to ISO EN 3744.
4. Referred to chilled water temperature 12/7°C – 0% glycol solution; air temperature to the condenser 35°C; water temperature heat recovery 40/45°C – 0% glycol solution. Fouling factor of the exchangers 0,043 $m^2°K/kW$.

(*) The value includes the remote condenser.
(**) The remote condenser has separated power supply.

DIMENSIONS (mm)
KELVIN Clim M5

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